## Rumrill, Nancy

**From:** Jennifer Saran <JenniferSaran@florencecopper.com>
**Sent:** Monday, July 12, 2021 9:36 AM
**To:** Rumrill, Nancy
**Cc:** Brent Berg; MNicholls@haleyaldrich.com
**Subject:** Aquifer exemption petition information
**Attachments:** ATT00001.txt

Hi Nancy,

As per our call on Friday, please see the response below to EPA's question on our submittal of information regarding the aquifer exemption petition:

**Question:**
Why did we use particle tracking analysis rather than the recommended method of volumetric capture zone analysis?

**Response:**
The particle tracking analyses submitted to USEPA represents the first step in the process of determining the volume of water captured from within the exempted aquifer area by each of the subject domestic and municipal water supply wells. Particle tracking is used to determine *if* water from within the exempted aquifer area is captured by a specific well, and *where* that water originates from relative to total well production. These two components indicate the origin of water captured by the specific well and allows us to calculate the fraction of that water originating in the exempted aquifer. *If* water from within the exempted aquifer were to be captured by a specific well, this fraction would allow us to calculate the volume of water produced by the well from within the exempted aquifer area.

However, in the case of Florence Copper, the particle tracking model scenarios show that *no water was captured* from within the exempted aquifer area by any of the subject domestic or municipal water supply wells within the period of simulation (150 years). No particle tracks, in either forward or reverse modes, extend from the exempted aquifer to any of the subject wells within the time period of simulation. It follows that the fraction of groundwater produced by these wells from within the exempted aquifer, within 150 years' time is zero, and consequently the volume of water produced by these wells from within the exempted aquifer area is also zero.

The particle tracking analyses described in our submittals to USEPA indicate that none of the groundwater produced by the subject domestic and municipal water supply wells originates within the exempted aquifer area. This conclusion can be represented as the fraction of water captured from within the exempted aquifer area (zero) multiplied by the total volumetric production from each well, to determine the volume of water captured from within the exempted aquifer area. The result of this calculation is zero, and is the analysis behind our earlier stated conclusion that none of the groundwater produced by the subject domestic and municipal water supply wells originates within the exempted aquifer area.

Please let me know if you need any additional information regarding this topic.

Thanks,
Jennifer

**Jennifer Saran** Environmental, Health and Safety Manager

Florence Copper Inc.
1575 W. Hunt Highway Florence AZ USA 85132
**C** 480-532-0108 **T** 520-316-3707 **F** 520-374-3999
**E** jennifersaran@florencecopper.com **Web** florencecopper.com

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